



# Installation Start-Up and Service Instructions

Part No. CRCBDIOX002A00

## CONTENTS


<b>SAFETY CONSIDERATIONS</b> .....	1
<b>GENERAL</b> .....	1
<b>Check Package Contents</b> .....	1
<b>INSTALLATION</b> .....	2,3
<b>START-UP</b> .....	4
<b>Configuring the <i>ComfortLink</i><sup>™</sup> Controller</b> .....	4
<b>Verification and Calibration</b> .....	4
<b>SERVICE</b> .....	4
<b>Cleaning</b> .....	4
<b>TROUBLESHOOTING</b> .....	4

## SAFETY CONSIDERATIONS

Installing, starting up and servicing HVAC (heating, ventilation, and air conditioning) equipment can be hazardous due to system pressures, electrical components and equipment locations.

Only trained, qualified installers and service technicians should install, start up and service this equipment.

When working on HVAC equipment, observe precautions in the literature, labels attached to the equipment and any other safety precautions that apply. Follow all safety codes. Wear safety glasses and work gloves. Use care when handling and installing the sensor.

Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety alert symbol . DANGER identifies the most serious hazards which will result in severe personal injury or death. WARNING signifies a hazard which could result in personal injury or death. CAUTION is used to identify unsafe practices which would result in minor personal injury or property damage.

### WARNING

Prior to installation of this accessory, make sure all power is disconnected to the unit and locked out. Failure to disconnect power supply prior to servicing may result in serious injury.

## GENERAL

The CO<sub>2</sub> sensor (Fig. 1) is designed to monitor carbon dioxide (CO<sub>2</sub>) levels in the return air and interface with the *ComfortLink*<sup>™</sup> controller on the rooftop air-conditioning unit. The sensor perceives CO<sub>2</sub> levels in the 0 to 2,000 parts per million (ppm) range and provides outputs indicating this level.

The unit utilizes a 4 to 20-mA analog signal. The *ComfortLink* controller uses this signal to control the economizer damper position and ensure adequate level of outside air in the building. This is one of several approved methods of controlling the indoor-air quality (IAQ) in a building and meets the requirements of local building codes and ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers) Standard 62. The control sensor features a membrane-covered waveguide and sample chamber that produces stable, reliable, and highly accurate carbon dioxide readings.

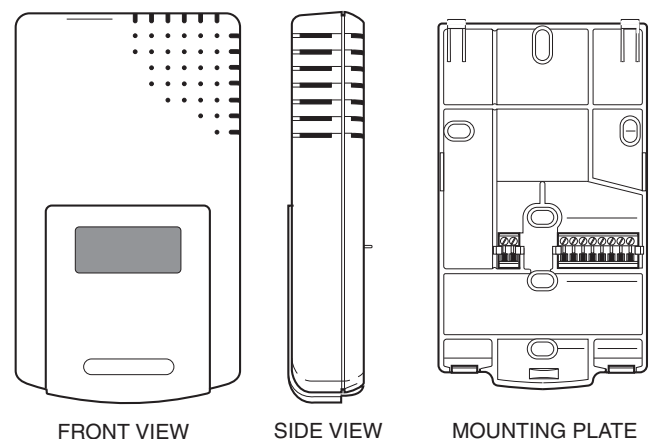
The sensor is self-calibrating and should not need to be manually calibrated.

**Check Package Contents** — Remove accessory packaging and inspect shipment for damage. If any damage is found, file a claim with the shipping agent immediately. If any item is missing or any part does not assemble properly, notify your Carrier distributor. Table 1 lists the accessory package contents.

**Table 1 — Accessory Package Contents**

ITEM	QUANTITY
CO <sub>2</sub> Sensor (Part No. HH99ZZ019)	1
Bracket (48/50A)	1
No. 8-18 x 1/4 Screw	2
1/4 AB-14 x 5/8 Screw	2
Electrical Harness*	1
Bracket (48/50P,48/50Z)	1

\*Do not use the electrical harness provided in this kit for 48/50P and 48/50Z units.



**Fig. 1 — CO<sub>2</sub> Sensor**

## INSTALLATION

**48/50A Units** — The CO<sub>2</sub> sensor is to be installed in the predrilled holes located above the auxiliary control box (see Fig. 2).

1. Shut off unit power supply.
2. Open the hinged auxiliary control box access door and secure.
3. Remove the sensor and cover from the sensor mounting plate.
4. Secure mounting plate to bracket (48/50A) with no. 8 screws (see Fig. 3).
5. Wire the electrical harness to the sensor as shown in Fig. 3 and 4.
6. Remove the blackout plate from the partition, just above the auxiliary control box.
7. Attach the sensor to the mounting plate.
8. Mount the bracket to the partition using 2 sheet metal screws (see view F in Fig. 2).
9. Connect the electrical harness (PL18).
10. Restore power to unit.

**48/50P and 48/50Z Units** — The CO<sub>2</sub> sensor is to be installed in the predrilled holes located in the power exhaust section. See Fig. 5-11.

1. Shut off unit power supply.
2. Open the power exhaust section doors/panels to gain access.
3. Remove the sensor and cover from the sensor mounting plate.
4. Secure mounting plate to the bracket with no. 8 screws.
5. The electrical wire harness for the CO<sub>2</sub> sensor is factory installed. Locate the four wires in the power exhaust section. Wire the electrical harness to the sensor as shown in Fig. 4.
6. Attach the sensor to the mounting plate.

Mount the bracket to the appropriate location:

size 030-050 units with power exhaust, see Fig. 5 and 6.

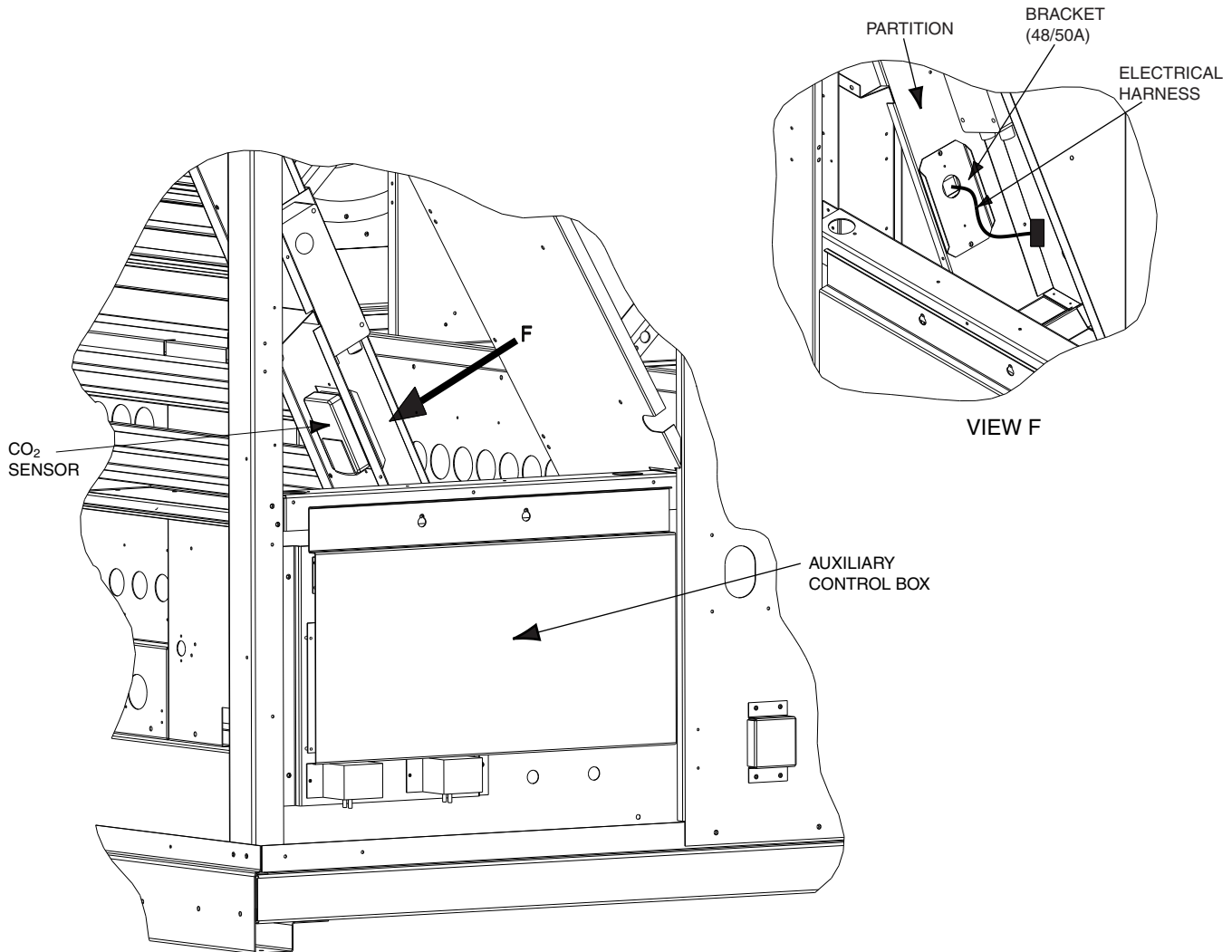
size 030-050 units with economizer only, see Fig. 7.

size 030-050 units with no economizer or power exhaust, see Fig. 8.

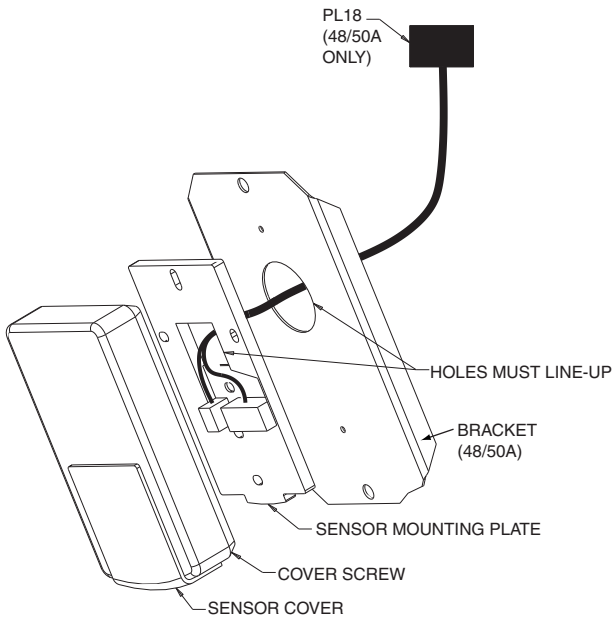
48/50P055-100 and 48/50Z055-105 units with power exhaust, see Fig. 9.

48/50P055-100 and 48/50Z055-105 units with economizer only, see Fig. 10.

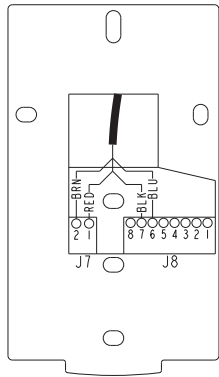
48/50P055-100 and 48/50Z055-105 units with no economizer or power exhaust, see Fig. 11.



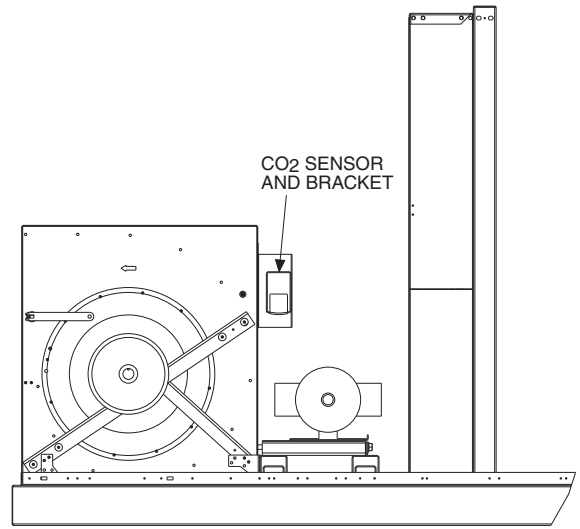
**Fig. 2 — 48/50A CO<sub>2</sub> Sensor Mounting Location**



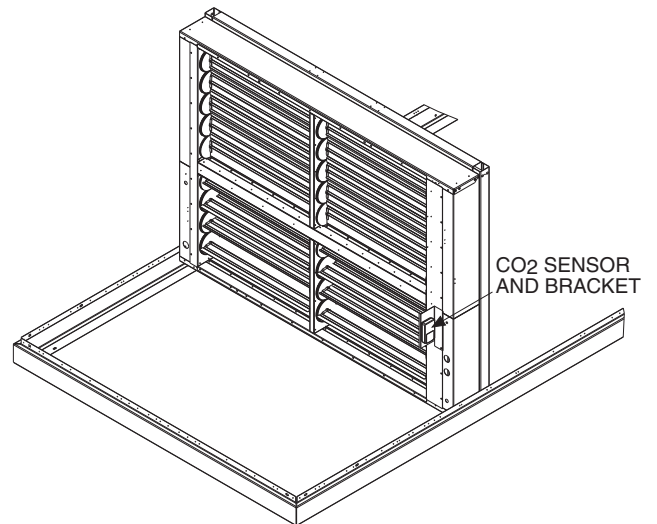
**Fig. 3 — CO<sub>2</sub> Sensor Assembly**



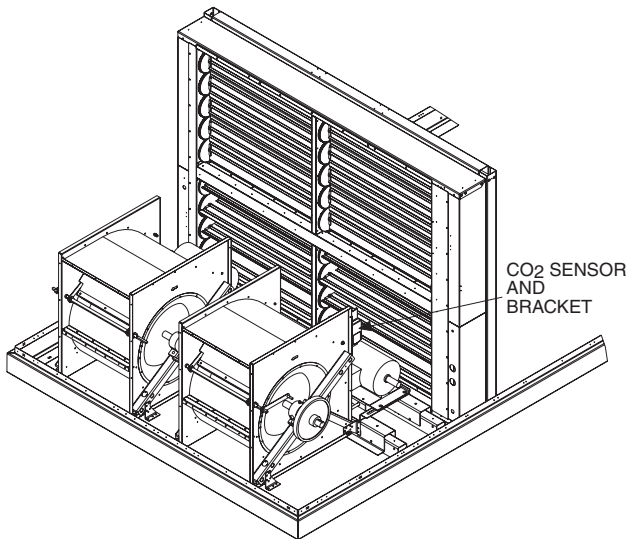
**Fig. 4 — Harness Wiring Connections**



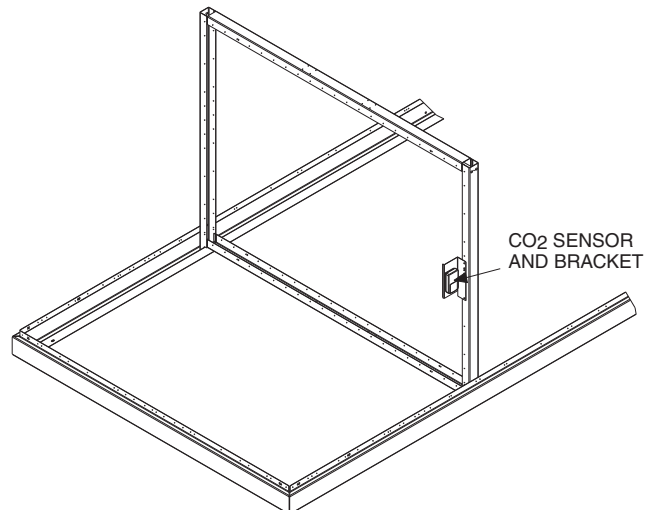
**Fig. 6 — CO<sub>2</sub> Bracket for 48/50P030-050 and 48/50Z030-050 Units Side View (Economizer with Power Exhaust)**



**Fig. 7 — CO<sub>2</sub> Bracket for 48/50P030-050 and 48/50Z030-050 Units (Economizer Only)**



**Fig. 5 — CO<sub>2</sub> Bracket for 48/50P030-050 and 48/50Z030-050 Units (Economizer with Power Exhaust)**



**Fig. 8 — CO<sub>2</sub> Bracket for 48/50P030-050 and 48/50Z030-050 Units (No Economizer or Power Exhaust)**

## START-UP

After applying power, the CO<sub>2</sub> sensor will enter a warm-up mode. Warm-up duration will be from 1 to 10 minutes. The warm-up duration will be shorter in warmer temperatures and longer in cooler temperatures. During warm-up, the signal output will be 4 mA. Once the unit has warmed up, the voltage or current output will be set up to indicate the CO<sub>2</sub> level. The display will show a steady reading 1 minute later.

### Configuring the *ComfortLink™* Controller —

The CO<sub>2</sub> sensor is defaulted to provide 4 mA at 0 ppm and 20 mA at 2000 ppm. If a different range is necessary, contact Carrier Application Engineering to reconfigure the sensor. If the sensor is reconfigured, the mA range on the *ComfortLink* controller must be configured to match the new values. Refer to Controls and Troubleshooting Guide for configuration details.

**Sensor Self Calibration** — The CO<sub>2</sub> sensors employ a self-calibration system. The system eliminates the need for manual calibration in applications where the indoor CO<sub>2</sub> level drops to outside levels during unoccupied periods (e.g., during evening hours). A special software routine in the sensor remembers the background readings for 14 consecutive evenings, calculates if there is a sensor drift, and then corrects for it.

NOTE: This only applies when used in typical indoor or ambient air conditions. Consult Carrier application engineering if other gases or corrosive agents are part of the application environment.

## SERVICE

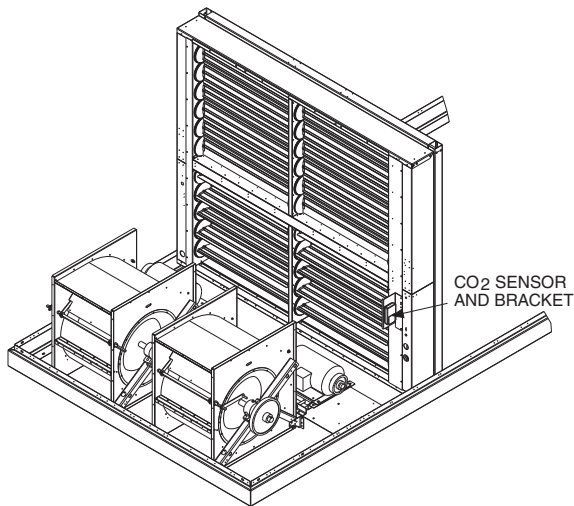
**Cleaning** — The controller is a rugged and lightweight unit that requires very little maintenance. Clean external surfaces periodically with a dampened cloth.

## TROUBLESHOOTING

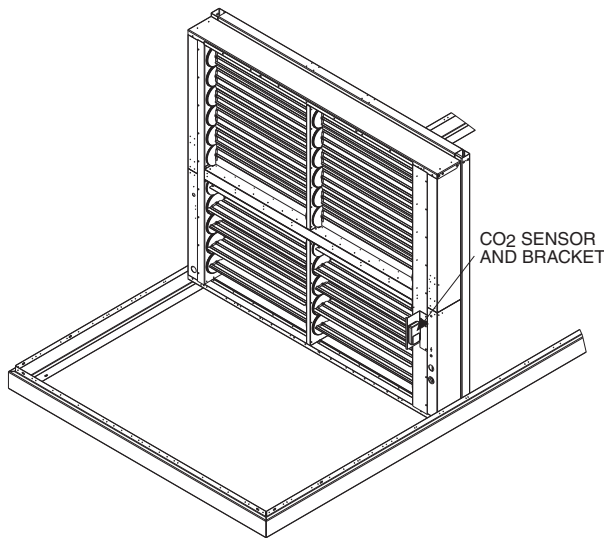
The following occurrences may indicate abnormal operation, caused primarily by power input fluctuations, surges, or spikes.

- The unit remains in warm-up mode for more than 10 minutes.
- The LED glows with no pulse.
- CO<sub>2</sub> indication (display numbers or signal output) is frozen.
- Numbers on the display change continuously for longer than 1 minute.

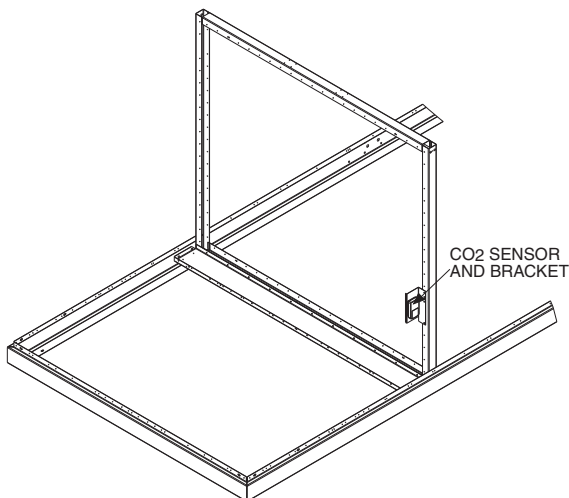
Normal operation can usually be restored by removing power, shutting down the unit for at least 15 seconds, then reconnecting power. The unit should warm up, as described above, then return to normal operation. If the situation continues, remove and replace the sensor.



**Fig. 9 — CO<sub>2</sub> Bracket for 48/50P055-100 and 48/50Z055-105 Units (Economizer with Power Exhaust)**



**Fig. 10 — CO<sub>2</sub> Bracket for 48/50P055-100 and 48/50Z055-105 Units (Economizer Only)**



**Fig. 11 — CO<sub>2</sub> Bracket for 48/50P055-100 and 48/50Z055-105 Units (No Economizer or Power Exhaust)**